

CLAIMS

1. An elevator apparatus comprising:
a detecting portion which detects the magnitude of the tension of a main rope suspending a car;
a plurality of braking devices which brake ascent/descent of the car by methods that are different from each other; and
an abnormality control device which is capable of ascertaining the magnitude of the tension based on information from the detecting portion and which, when the magnitude of the tension becomes abnormal, selectively outputs a braking command signal to any one of the braking devices according to the magnitude of the tension.

2. An elevator apparatus according to Claim 1, further comprising an alarm device which gives an alarm to the effect that the magnitude of the tension has become abnormal,

wherein, when the magnitude of the tension becomes abnormal, the abnormality control device outputs an abnormality signal to the alarm device at a stage where the magnitude of the tension is larger than the magnitude of the tension when the braking command signal is output, and

wherein the alarm device is adapted to give an alarm upon input of the abnormality signal.

3. An elevator apparatus according to Claim 1 or Claim 2, further

comprising a driving device which has a drive sheave around which the main rope is wrapped and a motor for rotating the drive sheave and which causes the car to be raised and lowered through rotation of the drive sheave,

wherein at least one of the braking devices is an operation control device which performs control over power supply to the motor to thereby brake the rotation of the drive sheave.

4. An elevator apparatus according to any one of Claims 1 through 3, further comprising a driving device which has a drive sheave around which the main rope is wrapped and a motor for rotating the drive sheave and which causes the car to be raised and lowered through rotation of the drive sheave,

wherein at least one of the braking devices is a brake device which has a braking member and which brakes the rotation of the drive sheave through contact of the braking member with the drive sheave.

5. An elevator apparatus according to any one of Claims 1 through 4, wherein at least one of the braking devices is an emergency stop device which is mounted on the car, which has a braking member, and which brakes the car through contact of the braking member with a guide rail guiding the car.

6. An elevator apparatus according to any one of Claims 1 through 5, wherein the main rope is provided with a connecting portion connected to the car through the intermediation of an elastic member, and

wherein the detecting portion detects the magnitude of the tension by measuring a displacement amount of the connecting portion with respect to the car.

7. An elevator apparatus according to any one of Claims 1 through 5, wherein the main rope is provided with a connecting portion connected to the car, and

wherein the detecting portion detects the magnitude of the tension by measuring an expansion/contraction amount of the connecting portion.

8. An elevator apparatus comprising:

a detecting portion which detects the number of main ropes that have been broken, a plurality of main ropes suspending a car;

a plurality of braking devices which brake ascent and descent of the car by methods that are different from each other; and

an abnormality control device which can obtain the number of main ropes that have been broken based on information from the detecting portion and which selectively outputs a braking command signal to each of the braking devices according to the number of

main ropes that have been broken,

wherein each of the braking devices is operated upon input of the braking command signal and brakes ascent and descent of the car.